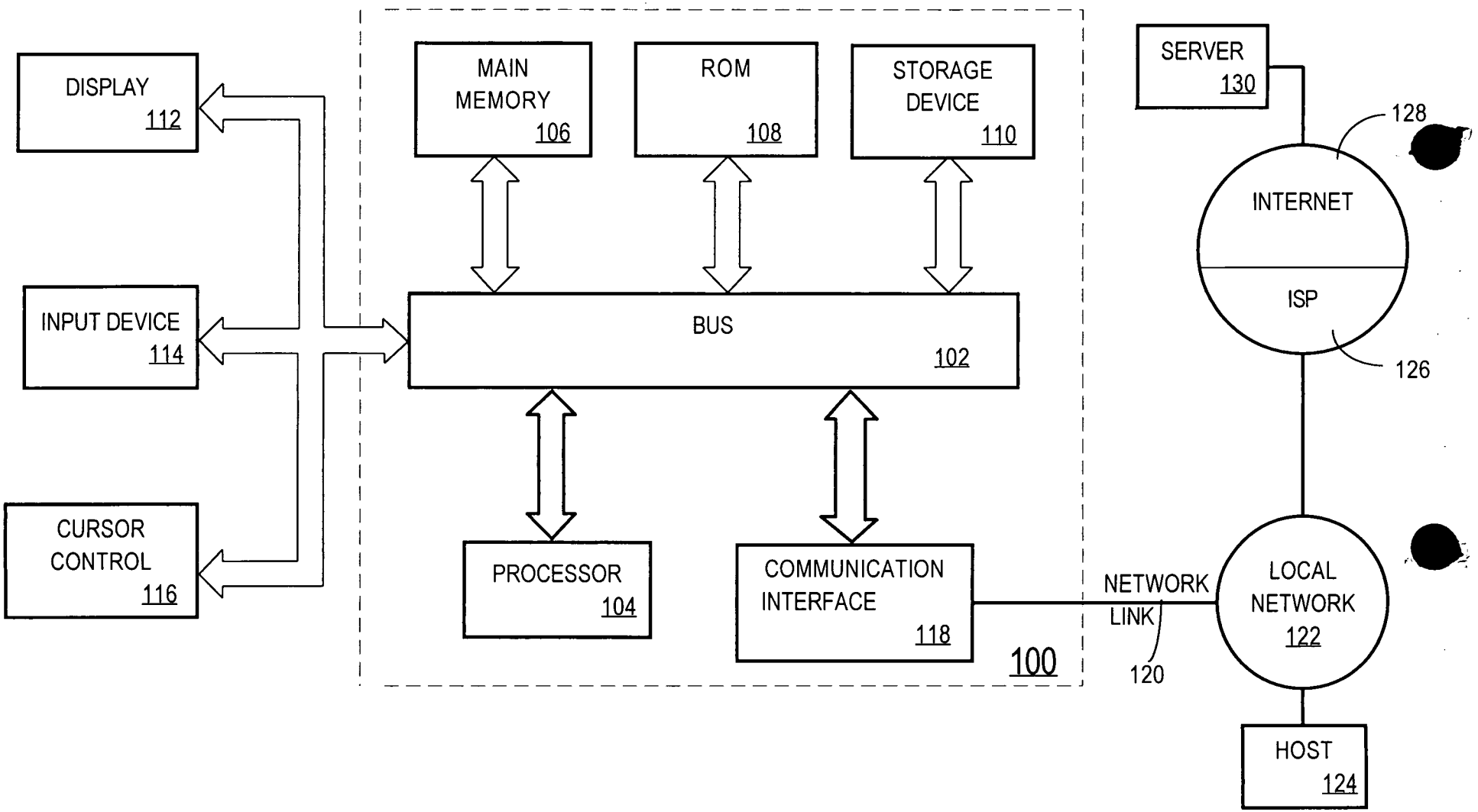
FIG. 1


DISPLAY
112
INPUT DEVICE
114
CURSOR
CONTROL
116
MAIN
MEMORY
106
ROM
108
STORAGE
DEVICE
110
BUS
102
PROCESSOR
104
COMMUNICATION
INTERFACE
118
100
NETWORK
LINK
120
SERVER
130
128
INTERNET
ISP
126
LOCAL
NETWORK
122
HOST
124

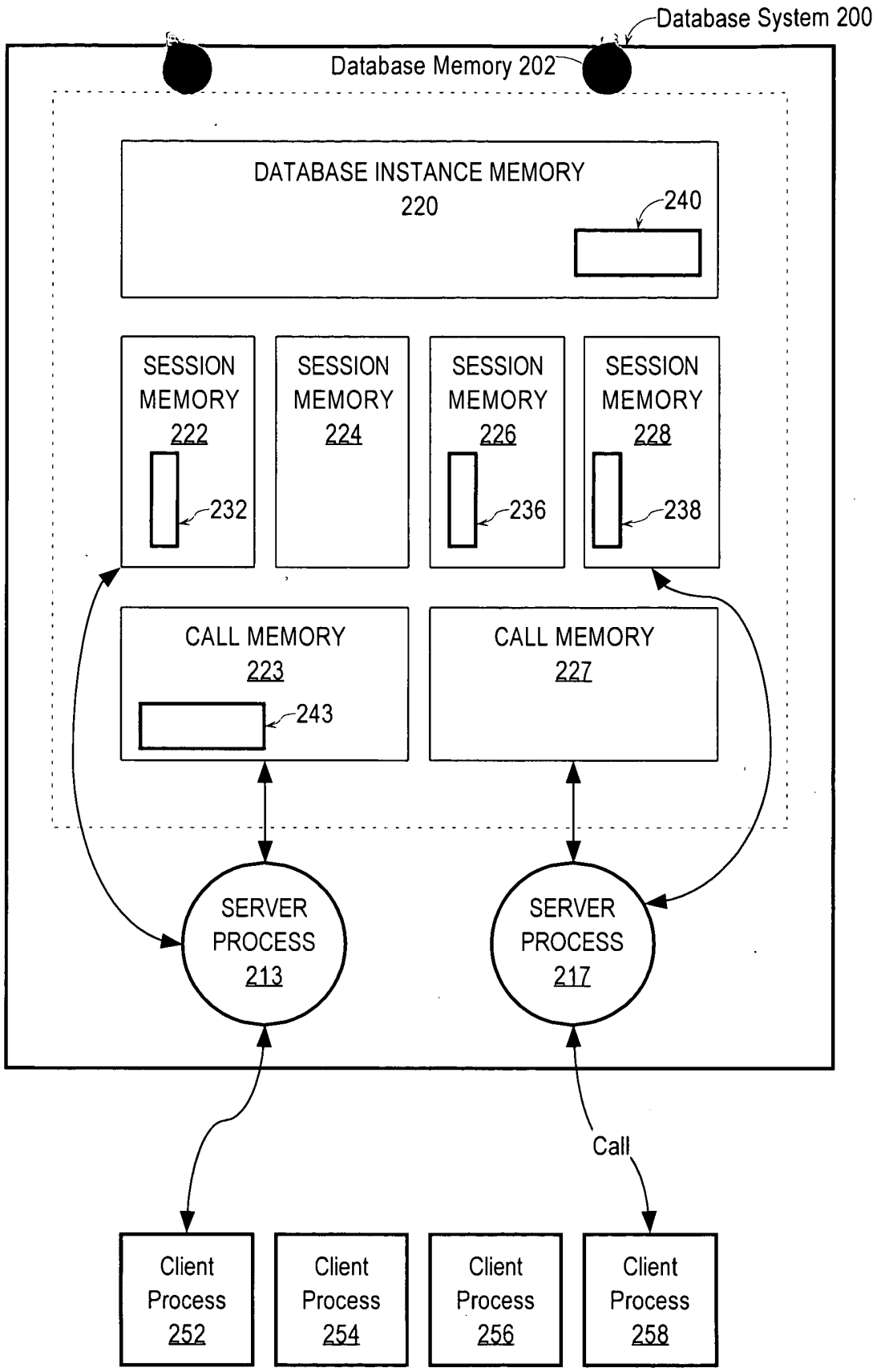

Database System 200
Database Memory 202
DATABASE INSTANCE MEMORY
220
240
SESSION MEMORY 222
232
SESSION MEMORY 224
SESSION MEMORY 226
236
SESSION MEMORY 228
238
CALL MEMORY 223
243
CALL MEMORY 227
SERVER PROCESS 213
SERVER PROCESS 217
Call
Client Process 252
Client Process 254
Client Process 256
Client Process 258

FIG. 2

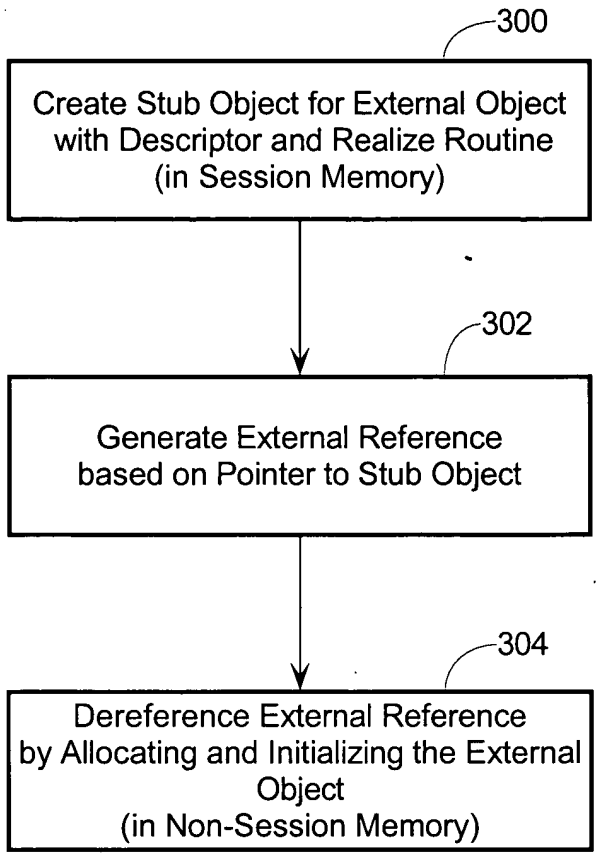

300
Create Stub Object for External Object with Descriptor and Realize Routine (in Session Memory)
302
Generate External Reference based on Pointer to Stub Object
304
Dereference External Reference by Allocating and Initializing the External Object (in Non-Session Memory)

FIG. 3

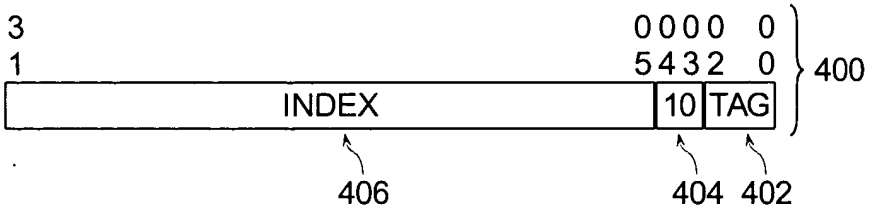

3
1
0000 0
5432 0
400
INDEX
10
TAG
406
404
402

FIG. 4

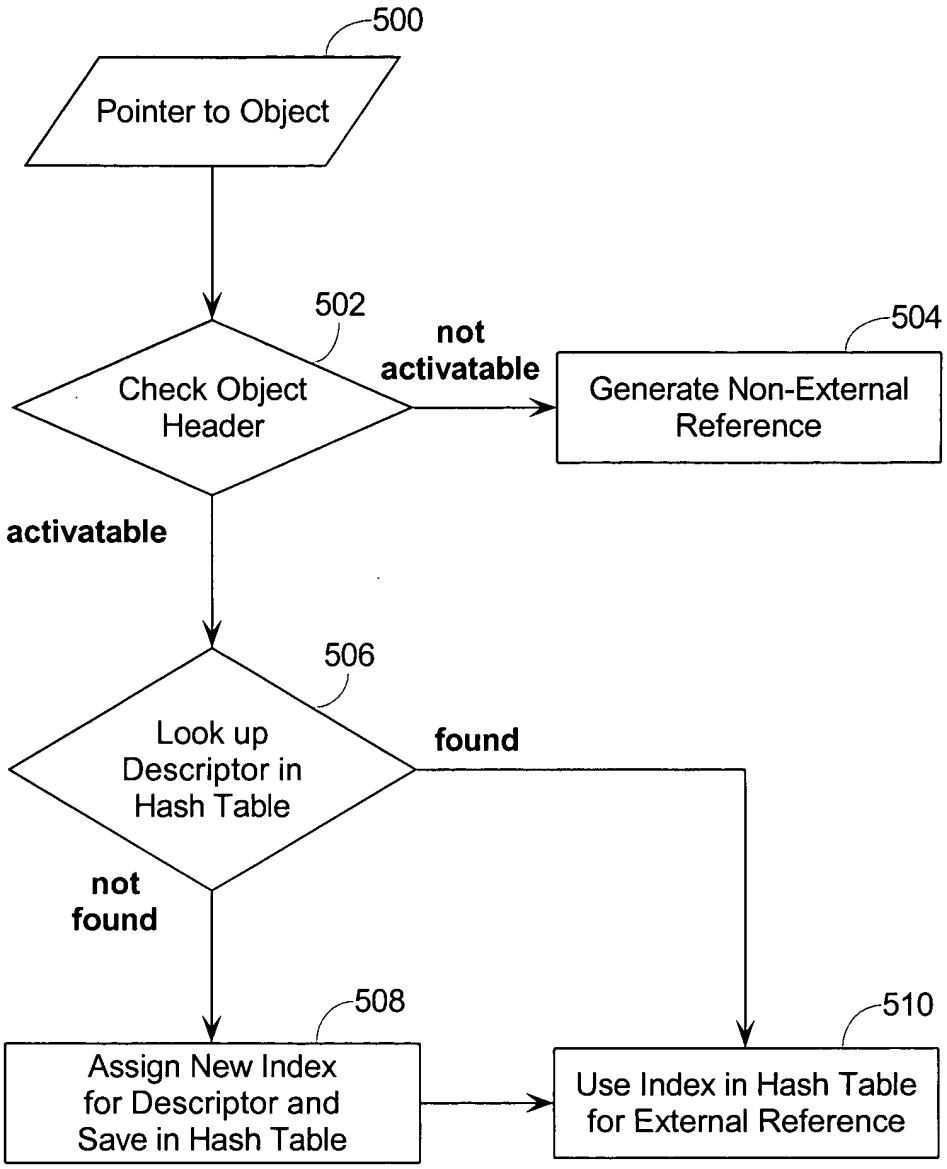

500
Pointer to Object
502
Check Object Header
not activatable
504
Generate Non-External Reference
activatable
506
Look up Descriptor in Hash Table
found
not found
508
Assign New Index for Descriptor and Save in Hash Table
510
Use Index in Hash Table for External Reference

FIG. 5

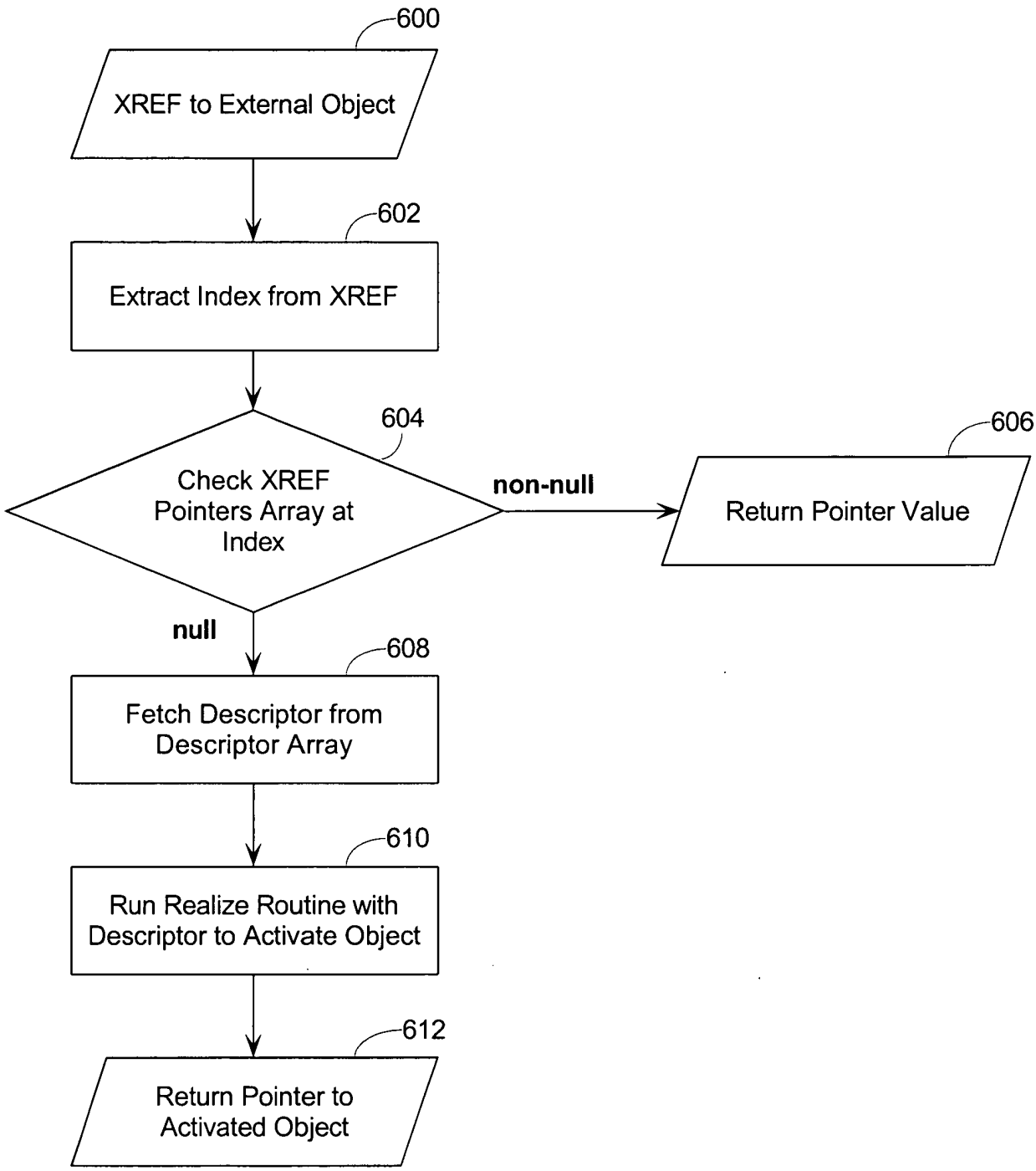

600
XREF to External Object
602
Extract Index from XREF
604
Check XREF Pointers Array at Index
non-null
606
Return Pointer Value
null
608
Fetch Descriptor from Descriptor Array
610
Run Realize Routine with Descriptor to Activate Object
612
Return Pointer to Activated Object

FIG. 6